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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/575,119	05/23/2000	Simon Robert Walmsley	PP07US	9160

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SILVERBROOK RESEARCH PTY LTD
393 DARLING STREET
BALMAIN, 2041
AUSTRALIA

EXAMINER

RAHIMI, IRAJ A

ART UNIT	PAPER NUMBER
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2622

DATE MAILED: 01/16/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/575,119

Applicant(s)

WALMSLEY ET AL.

Examiner

(Iraj) Alan Rahimi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 5/23/2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because it contains more than 150 words.

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-3, 8-15, 17 and 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Silverbrook (US patent 5,914,737).

Regarding claim 1, Silverbrook discloses a method of controlling a printer module having a printhead 50 that prints an image on printable media 51, said method including the steps of:

- storing an image in image storage memory 72;
- sensing the presence of printable media in the printer module (column 32, lines 50-57);
- activating a motor to advance said printable media past said printhead in said printer module (column 32, lines 50-57);
- retrieving said image from said image storage memory (column 6, lines 1-15);
- transforming said image to a form suitable for said printhead (column 6, lines 1-15); and
- transferring said transformed image to said printhead in a synchronous manner for printing by said printhead on said printable media (column 6, lines 1-15).

Regarding claim 2, Silverbrook discloses the method of claim 1 wherein said step of storing an image in image storage memory includes transferring an image from an image capture means to said image storage memory (Fig. 1.(a)).

Regarding claim 3, Silverbrook discloses the method of claim 1 wherein the step of transforming said image includes transforming said image to a dithered CMY image for printing by said printhead (column 29, lines 34-37).

Regarding claim 8, Silverbrook discloses the method of claim 1 wherein the step of dithering the image converts contone CMY to dithered bi-level CMY (column 5, lines 64-67).

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Regarding claim 9, Silverbrook discloses the method of claim 1 wherein said step of printing includes a further step of preheating and/or cleaning nozzles in said printhead (column 20, lines 48-67) .

Regarding claim 10, Silverbrook discloses ^a~~the~~ method of printing an image from image storage memory in a printer module including the steps of: retrieving said image from said image storage memory; transforming said image to a form suitable for a printhead; and transferring said transformed image to said printhead in a synchronous manner for printing by said printhead on a printable media (Fig. 1.(a)).

Regarding claim 11, arguments analogous to those presented for claim 7, are applicable.

Regarding claim 12, arguments analogous to those presented for claim 1, are applicable.

Regarding claim 13, Silverbrook discloses the controller of claim 12 further comprising scratch memory associated with said central processing unit for variable storage (RAM in Micro controller 315).

Regarding claim 14, Silverbrook discloses the controller of claim 12 further comprising a serial bus interface 513 communicating with a Serial Bus of a compact printer system including one or more further modules, said Serial Bus communicating power and data between said

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printer module and said one or more further modules (column 28, lines 66-67 to column 29, lines 1-7).

Regarding claim 15, Silverbrook discloses the controller of claim 14 wherein said data includes image data stored in said image storage memory 72.

Regarding claim 17, Silverbrook discloses the controller of claim 12 wherein at least one of said one or more interface units is a parallel interface unit communicating with at least a motor, said motor activating under control of said central processing unit to advance said printable media past said printhead (paper transport control 66 in Fig. 1.(a)).

Regarding claim 23, arguments analogous to those presented for claim 2 and 3, are applicable.

Regarding claim 24, Silverbrook discloses the controller of claim 12 wherein said printhead interface includes a synchronization generator unit (data phasing fault tolerant 506) that generates synchronization signals for transferring said image from said printhead interface to said printhead (column 32, lines 30-40).

Regarding claim 25, Silverbrook discloses the controller of claim 24 wherein said synchronization generator unit generates signals for synchronization of a motor of said printer module (column 32, lines 30-40).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-6, 16-18 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook in view of Gondek (US patent 6,137,495).

Regarding claim 5, Silverbrook does not disclose the method of claim 1 wherein said image is stored in image storage memory in L*a*b* format and said step of transforming said image further includes the step of converting said image from L*a*b* format to CMY format.

However, Gondek discloses in column 3, lines 1-7 converting L*a*b color space to color space of the printer. As it is well known, printers use the CYM color space for printing. Silverbrook and Gondek are analogous art because they are from the same field of endeavor that is printing art. Therefore, it would have been obvious to a person skilled in the art, at the time of invention to use Gondek for transformation of color spaces to enable output onto a printer.

Regarding claim 6, Gondek discloses the method of claim 5 wherein said step of converting said image from L*a*b* format to CMY format is a tri-linear interpolation process (column 3, lines 18-20).

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6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook in view of Tsai (US patent 5,742,409).

Regarding claim 7, Silverbrook discloses the method of claim 1 wherein the step of transforming said image further includes the steps of:
dithering pixels in said image (column 29, lines 33-37); and
formatting said image so that said image is represented by a dot function, each dot corresponding to an ink nozzle of said printhead (column 6, lines 11-16).

However, Silverbrook does not disclose up-interpolating said image to a suitable resolution for printing. Tsai discloses in abstract that the function of the interpolation device is for inserting pixels into the original pixels to increase the resolution (same as up-interpolating). Silverbrook and Tsai are analogous art because they are from the same field of endeavor that is image processing art. Therefore, it would have been obvious to a person skilled in the art, at the time of invention to use the interpolation of Tsai to increase the efficiency of the video buffer and improve speed of I/O device.

Regarding claims 4, 16, 18-21 and 23, Silverbrook does not specifically disclose the limitations for memory size and processor speed as claimed. However, since these limitations as stated on pages 5, 13, 14 and 15 of the specification do not appear to be critical to the operation of the controller nor they produce unexpected results, they are considered to be design choices one could make among plurality of choices.

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7. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook in view of ^{Arthur}~~Bullock~~ et al (US patent 5,699,091).

Regarding claim 26, Silverbrook does not disclose the controller of claim 12 wherein at least one of said one or more interface units communicates with a QA chip 14 of an ink cartridge (column 3, lines 4-16). Data read from the memory as indicated could be the manufacture. Such data may be used for communication with the memory 46 in printer to control operation of the printer including authentication. Silverbrook and Arthur are analogous art because they are from the same field of endeavor that is printing art. Therefore, it would have been obvious to a person skilled in the art, at the time of invention to combine Arthur's invention with Silverbrook to prevent inadvertent misplacement of the print heads.

Regarding claim 27, Silverbrook does not disclose the controller of claim 26 wherein two of said one or more interface units communicate with a pair of QA chips, one said QA chip being said QA chip of said ink cartridge (memory 14) and the other said QA chip being an associated QA chip (memory 46), said QA chips cooperating to authenticate said ink cartridge for said printer module (column 3, lines 4-16). Data read from the memory as indicated could be the manufacture. Such data may be used for communication with the memory 46 in printer to control operation of the printer including authentication. Silverbrook and Arthur are analogous art because they are from the same field of endeavor that is printing art. Therefore, it would have been obvious to a person skilled in the art, at the time of invention to combine Arthur's invention with Silverbrook to prevent inadvertent misplacement of the print heads.

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8. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook.

Regarding claim 28, Silverbrook discloses the controller of claim 12 wherein said controller is an application specific integrated circuit. It is common to incorporate several operational functions in integrated circuits. Therefore, it would have been obvious to a person skilled in the art, at the time of invention to use application specific integrated circuits to reduce number of components used.

Other prior Art Cited

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bullock et al. (US patent 5,699,091) discloses replaceable part with integral memory for usage.

Yamada et al. (US patent 5,742,296) discloses converting L*a*b color space to CMY.

Miyake (US patent 6,157,749) discloses dithering and interpolation.

Field (US patent 4,680,630) discloses interpolation for increasing resolution.

Cook (US patent 6,158,850) discloses an apparatus that insures the ink supply in a disposable carrier and the ink supply in a tank are compatible before refiling.

Contact Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Iraj) Alan Rahimi whose telephone number is 703-306-3473.

The examiner can normally be reached on Mon.-Fri. 7:30-4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L Coles can be reached on 703-305-4712. The fax phone number for the organization where this application or proceeding is assigned is 703-782-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3800.



Alan Rahimi
December 31, 2003



EDWARD COLES
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2003